

XXV.—On some Western Australian Birds collected between the North-West Cape and Albany (950 miles apart).

By THOMAS CARTER, M.B.O.U., M.R.A.O.U. With Nomenclature and Remarks by GREGORY M. MATHEWS, M.B.O.U., M.R.A.O.U.

As the collections of bird-skins made by me in 1916–17 in some of the south-west, mid-west, and north-west-areas of Western Australia have at last arrived in England, after a long delay caused by the marine risks prevailing during the last few years (see ‘Ibis,’ 1917, p. 587), Mr. Mathews and I now publish notes and remarks on birds obtained and observed in localities north and south of Shark Bay during the above-mentioned visit, as well as on two short trips that I made to the Gascoyne and Point Cloates districts in 1911 and 1913, and on a tour through the south-west of Western Australia in 1919, from which I have recently returned. The following itinerary may be interesting as describing the varied means of transit used :—

Left my station at Broome Hill in South-West Australia 30 July, 1911, hoping to revisit my original sheep-station at Point Cloates and the North-West Cape peninsula, where I had lived for thirteen years, and to search for the nests and eggs of *Stipiturus malachurus ruficeps* and *Eremiornis carteri*, which at that date were undescribed. I travelled two hundred and fifty miles by railway to Perth, then sailed by steamer six hundred miles to Carnarvon, arriving on 5 August. Eleven days were spent there searching through the mangroves and coastal scrubs, and also the timber and scrub on the banks and islands of the large Gascoyne River, which, as usual, was not running at the time ; but there were some pools in its wide sandy bed, and considerable bird-life around them. Left Carnarvon 16 August by five-horse mail coach, and arrived at the Minilya River Station (eighty miles north) on the 18th. There the late owner, Mr. Donald McLeod, most kindly lent me a pair of horses and buggy, and I proceeded sixty miles north, reaching Maud’s Landing on the 23rd. Owing to a severe drought then prevailing, the whole country

was almost denuded of grass, and travelling along the coast was extremely hard upon the horses, owing to the loose dry sand and constant steep hills, also of sand. It was impossible to obtain any fresh animals, as I hoped to do, or any chaff or horse-feed, and as the forty odd miles between there and Point Cloates was by far the worst and heaviest piece of road anywhere, I reluctantly gave up the idea of proceeding further north. So after resting the horses for ten days, I proceeded inland for about fifty miles, camping one night at an artesian bore, where the overflow formed a considerable swamp, and from there worked back to the Minilya, getting some specimens daily; then after a few days at the Minilya, waiting for the mail coach, I left by it for Carnarvon, and took a steamer for Fremantle and the south on 30 September.

On 3 August, 1913, I left Broome Hill to have another attempt for the North-West Cape, travelling by train to Geraldton, about five hundred and fifty miles. From there I sailed by steamer to Carnarvon, arriving on 10 August; and after a few days spent in old haunts, I travelled by mail coach drawn by six camels to the Minilya River, and thence by mail buggy drawn by two camels to Point Cloates, on 23 August. There I was so fortunate as to meet Mr. W. Bryan, an old pearler, who was starting the next day for the vicinity of the North-West Cape, in an open 16-foot boat, to try to get some dugong for their excellent meat and oil. He gave me and my "swag" a passage to the Yardie Creek (*alias* Jacob Remessen's River of the Dutch explorers of 1620), while I undertook to show him the best channels through the many dangerous reefs, and also safe anchorage for his boat, as he did not know that coast. He landed me at the mouth of the Yardie on 26 August to camp alone until he returned from further north in about ten days' time. As this is the type locality where both *Stipiturus malachurus ruficeps* and *Eremiornis* were obtained by me in 1898, and both were fairly common until I left Point Cloates in 1903, I hoped to find the nest and eggs of one or both of the birds. However, although I systematically searched the narrow flat between the ranges and the sea, and most of the

deep rugged gorges of the ranges, where large masses of Spinifex (*Triodea*) used to grow, I never saw a single specimen of either bird, probably because most of the dense low coastal scrub and larger masses of Spinifex had been burnt off in the meanwhile.

The range begins about two miles from Point Cloates, and extends north for seventy-five miles, terminating at the bluff of Vlaming Head. It is from five to six hundred feet or more in height all the way, and contains numerous deep gorges with precipitous cliffs, so that it is almost waterless, very tiring country to work, and exceedingly severe on boots. Its western side is within a mile, or less, of the sea, and between them is a narrow flat, with scrub and Spinifex. Strong hot gales from the east, with dust storms, also blew daily until noon during my visit, making small birds keep close to cover and difficult of observation. The boat called for me on 5 September, and we reached Point Cloates on the 7th, passing through the large whaling fleet stationed north of that place, and seeing some of the powerful tugs pursuing "Humpback" Whales and shooting them with bomb-harpoons. As the manager of the Company kindly offered to give me a passage to Carnarvon in one of the tugs that was starting on the evening of 12 September for mails and stores, I arrived there early the next morning, having made the passage in sixteen hours, as against the eight days it would have taken me by road. I was at Carnarvon for three weeks, the greater part of which time was spent on or near the coast, observing the arrival of great numbers of the Charadriiformes from their breeding-grounds in North-East Asia. The two new subspecies *Alistervornis lanioides carnarvoni* and *Acanthiza inornata carnarvonensis* were also obtained at this time. I sailed for Fremantle and the south on 4 October.

As business in connexion with my Broome Hill property necessitated my leaving England for West Australia in November 1915, and Mr. Mathews had asked me if I would try to obtain specimens of the long-lost *Malurus leucopterus* and *Amytis textilis* after my business was completed,

I thought it would be a good opportunity to make a third attempt to obtain breeding notes of *Stipiturus malachurus ruficeps* and *Eremiornis* in the vicinity of the North-West Cape as soon as the Australian summer was well over. Meanwhile I revisited Lake Muir—a fine sheet of brackish water about twelve miles by six in the extreme south-west, and was there a fortnight, and then worked through that area, staying a few days at localities on the Upper and Lower Blackwood River, and also on the Margaret, Vasse, and Collie rivers. Several days were also spent in the vicinity of Cape Mentelle, near where I had seen *Sphenura longirostris* and *Psophodes nigrogularis* in 1903; but most of the coastal country had been burnt bare of the former dense scrub, in order to “improve” it for cattle-grazing, and apparently the above interesting birds have been exterminated from that locality. Some of the large lakes and swamps where many water-fowl abound, within a twenty-mile radius of Perth, were also visited; and on 19 April I sailed for Shark Bay and Dirk Hartog Island (for accounts of which see ‘Ibis,’ October 1917), leaving there on 27 May by steamer for Carnarvon, where I stayed three weeks. I had the pleasure of seeing the great Gascoyne River come down in full flood, filling the dry sandy bed (about three-quarters of a mile wide) with from twelve to twenty feet depth of water, from bank to bank, in a few hours’ time. On 17 June I sailed in a schooner for Maud’s Landing, arriving on the 19th, expecting to be able to travel to Point Cloates with the fortnightly mailman; but he arrived several days late with only a pack-horse, as the three rivers between there and Carnarvon—viz., the Lyndon, Minilya, and Gascoyne—were all running bankers and impassable for vehicles. It seemed as if I should again be disappointed in reaching the North-West Cape, but after a few days, by great good fortune, a carpenter turned up to effect some repairs on the jetty, and I was able to hire his strong and “roomy” buckboard buggy, with pair of horses and full camping outfit, for a term of two months; so I lost no time in proceeding to Point Cloates, and called on the lighthouse keeper, Mr. Stuart, who was an

old friend. He was seriously unwell, and asked me if I would stay at the lighthouse and help the assistant keeper to keep things going there, while he went in one of the whaling tugs to see the doctor at Carnarvon, and either returned himself or send up another man to take his place; so I was "hung up" there for three weeks, which delay in a great measure spoilt the trip. I did not like to lose so much time from my two months' hire of the buggy, but I was able to do some collecting, and the horses, which were in poor condition, improved very much before I proceeded north again on 17 July, reaching the Yardie Creek on the 19th, where I camped for a week, again without seeing a single *Stipiturus* or *Eremiornis*. Much of my time was daily occupied in having to find my horses, which were hobbled out to graze where they liked; then having to lead them two miles up the rugged stony ranges and down a very nasty piece of broken cliff, as near as I could get them to one of the pools of water, the "nearest" being within about two hundred yards of boulders and rocky steps. As these two horses were frightened and nervous and would not go any further, I had to cross this intervening space with a bucket, fill it at the pool, and scramble and climb back to the horses with it. They usually required four or five bucketsful between them, and some water was always spilt. Then I had to fill my two-gallon canvas water-bag for a day's supply for myself and lead the horses back to the camp. I also had to shoot a kangaroo, wallaby, or something for meat and do my own cooking. Leaving the Yardie on the 26th, I went on northwards, having to dig down several feet in loose running sand near the beach for the next supply of water for the horses and myself. The "digging" was done by a large conch shell. I can recommend this work as a good test for anyone's temper, as the sand invariably "caves" in several times, just as the water is reached. The next day I was so fortunate as to meet two old blackfellows who had been "station hands" for me at Point Cloates, and wished they had turned up sooner, as they could have taken a lot of the above work off my hands. Our next camp was nearly

twenty miles further north, and the water was about fifteen feet down a narrow fissure in solid rock. The horses drank it, but it was too brackish for us ; and we had to drive four miles down the flat every day, tie up the horses with the buggy, and climb about three hundred feet up the ranges to a rock hole, or "soak," on the bare rocky surface, where we filled the water-bag, bucket, and all available utensils that would hold water to take back to the camp. It was a most interesting sight at this tiny water-hole to see scores of *Emblema picta*, *Lophophaps ferruginea*, *Ptilotis keartlandi*, and other species assuaging their thirst. As I obtained a specimen of *Eremiornis carteri* near our camp, we remained a few days, but saw no more. The bird was a breeding male, feeding in the large bunches, sometimes breast high, of *Spinifex*, which is their favourite haunt. Proceeding north again, we camped for three days while I "worked" some large mangrove swamps, which had given good results in former years, but held very few birds on this occasion. On 5 August I reached my "farthest north" point at a sheep station not far from Vlaming Head and the North-West Cape, where I was most hospitably received by Mr. A. Campbell, and stayed a few days. This is where I shot a *Chlamydera maculata* with a 450' Colt's revolver in 1892, and afterwards had seen none of these fine birds ; but in company with my host I was able to obtain some further specimens, as will be described later in this paper. As my time-limit for the hired buggy would not allow me to round the North-West Cape and revisit the Exmouth Gulf country, as I had hoped to do, I reluctantly turned south on 10 August, and camped again at the place where I had shot the *Eremiornis*. A native and I carefully searched some large patches of *Spinifex* for two days, but failed to find a nest. I then drove alone back to Maul's Landing, where I was fortunate in meeting an old squatter friend, Mr. Guy McLeod, who was driving a mob of three thousand sheep to his Minilya Station, and gave me permission to travel with him, the large waggon drawn by fourteen camels, with calico yard for sheep, and water-tank, food, etc., for the drovers, easily

finding room for my outfit. The sheep started away early every morning, and the waggon followed them, sometimes on a bush "road," but mostly across open country. Mr. McLeod had his motor car with him, but most of the time it was fastened by ropes to the hind axle of the waggon, and I travelled in it, trying to keep it straight behind the waggon. There was often much Spinifex in large tussocks, occasional rocks, and sometimes thick scrub up to twelve feet in height, but wherever the waggon went, the motor car had to follow. Sometimes we would suddenly come to the edge of a steep declivity, and the camels had a cheerful way of going down it at a clumsy gallop, with the motor bounding after it in a most exhilarating way, over all and sundry obstacles, none of which I could see ahead of me on account of the waggon. However, I never *quite* capsized the motor, and we reached the Minilya on 30 August. I did twelve days' field-work there, and left on 12 September by mail coach drawn by five camels for Carnarvon. When forty miles south of the Minilya, I "stopped off" five days at a station owned by Mr. Harry Campbell, another old friend of mine, as when passing through his country by mail coach on previous excursions I had seen some undoubted *Climacteris* in some of the "Jam" (*Acacia acuminata*) timber that grew there, and thought they must be *Climacteris wellsi*, first obtained by Mr. Shortridge on the Upper Gascoyne River in 1908 (see 'Ibis' 1909, p. 650), when the breeding-habits were not known. My surmise proved correct, and I found the birds breeding, as described later in this paper. Mr. Campbell kindly motored me to Carnarvon on 18 September, and as the Gascoyne River had ceased flowing, the friendly aid of a camel, hooked on in front of the motor car, enabled us to cross the heavy sandy bed, about a mile in width, which is always very difficult for a motor to do unaided. I sailed from Carnarvon to Dirk Hartog Island on 27 September.

The trip from which I have recently returned was made in order to effect the sale of my station at Broome Hill. I left Liverpool 30 October, 1918, travelling by ss. 'Carmania' to New York; thence by railway to Montreal, Banff, and

Vancouver, "stopping off" a few days at Banff, and being "hung up" at Vancouver for seventeen days; thence I sailed 9 December *via* Honolulu, Fiji, and Auckland to Sydney, where the steamer and passengers were quarantined for a week on account of the influenza epidemic, then raging generally at all ports on the route. As the shipping strike had stopped all coastal traffic, I went across Australia by the Trans-Continental Railway to Perth, Western Australia, arriving 21 January, 1919. After completing my business, I made a collecting tour of eight hundred miles through the south-west area, mostly by motor car with Mr. J. Higham, the owner of the car, and a keen field-naturalist. Unfortunately, it was then the driest and hottest summer on record there; birds were in full moult, and we were much inconvenienced by disastrous bush-fires, that had swept about half the country traversed. I returned to Perth early in April with the intention of doing more field-work in Shark Bay and Dirk Hartog Island; but as the shipping strike still prevented coastal steamers running, and then influenza spread to Western Australia, making local travelling very difficult and unpleasant on account of the stringent health regulations, I reluctantly gave up my proposed trip and returned to England *via* the Suez Canal, being very fortunate in obtaining a berth that an intending passenger had thrown up at almost the last moment.

Dromiceius novæhollandiæ woodwardi.

When camped 3-4 September, 1911, at the artesian bore, which is situated in long red sand ridges with much scrub on them, about twelve miles east of Maud's Landing, Emus were coming to drink in great numbers the whole time at the rather extensive swamp caused by the overflow from the bore-pipe. The water at the pipe is so hot that I could not keep my hand in it, and is too salt for human use. My horses refused to drink it, and they were thirsty. Owing to the drought then prevailing, there was no other water available for the Emus for a long distance. The remains of dead Emus that had been entangled in the paddock-fence

wires were constantly seen on this trip, and as no young birds were observed anywhere, it may be presumed that the adults refrained from breeding in such a dry season, which abstinence is customary, according to my experience. When at Maud's Landing on 21 June, 1916, a teamster brought in many eggs which he told me he had obtained about fifty miles eastwards, where Emus were then breeding freely. It was a good season, with abundant rains.

The south-western subspecies of Emu (*rothschildi*) was not uncommon about Lake Muir on my visits there in 1916 and 1919. One adult female shot there on 19 March, 1919, was quite devoid of fat, which is a rare occurrence, excepting in a drought. The general plumage of this subspecies is much darker than that of those from the north-west area. Emus are not liked in the south-west, owing to their eating the large seeds of the poisonous "Xamia" Palm (*Macrozamia*), and so spreading the plants by voiding undigested seeds.

Leipoa ocellata ocellata.

The Western Mallee Fowl still breeds in the south-western corner, from south of the Vasse River, and round all the south coast, and also in some of the districts east of the Great Southern Railway; but their breeding-places are being steadily reduced by the burning of the coastal scrubs, and the clearing and cropping of the eastern Ma-lock and other thick scrubby areas, for agricultural purposes. In February 1919 I flushed an adult in some scrub within one hundred yards of a selector's house where I was staying, fifty miles east of Broome Hill; and on 16 February, in the same locality, flushed two young birds, about the size of small pullets, from low scrub, close to the edge of a road along which I was driving at the time. One of them appeared to fly with difficulty.

Mr. Higham and I were hoping to find some of these birds when we camped near the mouth of the Warren River in March 1919, but although we saw many of their tracks under the dense "Stinkwood" thickets that they frequent so much, we did not see one of the birds. The

end of summer is about the worst time to find any of them, as the breeding-season is then over and they wander away from their nesting-mounds, not returning much to them until they open them out for repairs early in winter. I may mention that the lower Warren district is extremely difficult to work on account of a dense scrub, much swampy country, and immense steep sand-drifts.

Ypsilophorus ypsilophorus rogersi.

Several Brown Quails were flushed at the Lyndon River on 27 August, 1916, and Mr. Guy McLeod told me that he and a friend had enjoyed some good shooting with them earlier in the year on the Minilya River flats, where they were very plentiful. A few were seen, and specimens (*sordidus*) obtained, close to Cape Leeuwin in March 1919.

Alphaturnia velox vinotincta.

The Little Quail was found breeding at Point Cloates on 11 September, 1913, when small young, capable of flying, were seen. Also on the Minilya River in 1916, when fresh eggs were taken on 9 September. Many of these birds were seen when driving north of Point Cloates. I have never observed this species in South-West Australia.

Geopelia placida clelandi.

Western Ground-Doves were very numerous in and about the bed of the Gascoyne River and breeding freely on 18 September, 1911.

Stictopeleia cuneata mungi.

Western Spotted-shouldered Doves were fairly common about river-beds and pools, but not so plentiful as the Ground-Doves. A good many were seen feeding in the bushes growing on the ranges at the Yardie Creek in September 1913. These birds were breeding about Carnarvon in September 1911 and 1913.

Phaps chalcoptera murchisoni.

Bronze-winged Pigeons are diminishing in numbers in the south-west as agricultural settlement advances and the "Jam" trees (*Acacia acuminata*) are cut down and destroyed.

The seeds of this small tree are one of the favourite foods of the bird. A good many were observed east of Broome Hill, and at one house I saw several, daily feeding with the domestic fowls on the grain etc. thrown out for them. Recently fledged young were seen at Broome Hill on 16 January, 1916.

Cosmopelia elegans neglecta.

Brush Bronze-winged Pigeons are rapidly becoming less in number in the south-west districts. At present they appear to be most numerous between Cape Naturaliste and Augusta, where several were seen in the coastal scrubs. They have a habit of coming out on the high roads, especially about sunset. On 21 March, 1916, I was hiding in tall rushes and scrub on the edge of a small "dub" of water near Busselton, hoping to see some Bronze-wings come in to drink at sundown, as is the custom of both varieties of these birds. After a while a large wild cat (*i. e.*, a domestic cat living in a wild state) came straight to the water's edge and had a long drink without noticing me. Soon afterwards another did the same, so I thought that I was well concealed. Then a pair of Brush Bronze-wings walked in sight, having quietly alighted at some little distance. The leading bird saw me at once, and stopped a few yards away from the water; so I surmised that these birds have a keener sense of danger than cats.

Lophophaps ferruginea ferruginea.

Red-plumed Pigeons were very scarce at the Yardie Creek in August 1913, only one party of three birds being seen during my ten days' visit. In 1916 they were plentiful there; also at other places on the ranges further north, in the vicinity of rock-holes of water, from which they never seem to go far away. The aboriginal name (Tallangee tribe) for these birds is "Kool-brit."

Ocyphaps lophotes whitlocki.

Western Crested Pigeons are now very much rarer in the Gascoyne district than they were thirty years ago. The

only place where any were seen on my 1911, 1913, and 1916 trips was on a station sixty miles north of Carnarvon, where many patches of "Jam" trees grew. A good many were seen there about the wells.

Porzanaidea plumbea roberti.

The Western Spotless Crake is a very unobtrusive and shy species, not venturing much out of the shelter of dense rushes or grass. I have obtained specimens and seen the birds from Albany to Lake Craigie (about twenty miles north of Perth) in some of the numerous large reedy swamps and lakes. They were common in January 1916 in the large freshwater lakes near Lake Muir, and also in March 1919. An immature example, almost full grown, was shot there on 21 January, 1916. Mr. Muir informed me that his domestic cat occasionally caught one of these birds and brought it to his house. I have the skin of one so obtained. The loud harsh notes of these Crakes are more often heard than the birds themselves are seen. They are most frequently observed in the early morning or about sunset.

Microtribonyx ventralis ventralis.

On 17 April, 1919, large numbers of Black-tailed Native Hens appeared on the Vasse River, at Busselton, where I was staying at the time. Residents of that town told me that it was fourteen years since a similar irruption had occurred. Three of the birds that I shot were in good plump condition. When I was staying in Perth, during the second week of May, great numbers of these birds came to the artificial "lakes" of Queen's Gardens and Hyde Park, well within the city boundaries, and were there for a few days, but then disappeared. On 23 May I was staying with a friend about one hundred and forty miles inland (east) from Perth and we saw some hundreds of these "Swamp-Hens," as they are usually called, on the edge of a brackish lake, while other smaller parties were seen at various places remote from water. A few were noticed by me on 7 September, 1916, at a pool near the Minilya River, and I saw some of their eggs that had been obtained a few days before that date.

Gallinula tenebrosa magnirostris.

Western Black Moorhens are not uncommon in some of the numerous large swamps in the south-west, but appear to be local in distribution. Mr. Higham and I obtained several specimens in deep swampy pools near the mouth of the Warren River in March 1919, and lost others that were shot. It was a very unpleasant and sometimes risky proceeding to retrieve them, owing to deep water, unknown depths of mud, and treacherous weeds and rushes. There were also unlimited numbers of large water-licees, and venomous black snakes abounded in the rushy edges of the swamps. However, Mr. Higham was always game enough to make an attempt to recover any birds that were shot in such places. This species occurs on some of the lakes in the neighbourhood of Perth, and we obtained specimens at Girgin, fifty miles north of that city. After a careful comparison by Mr. W. B. Alexander and myself of specimens of this bird from the Eastern States and West Australia, we agree that they are subspecifically distinct, as first shown by Mr. Mathews.

- a. Ad. ♀. Girgin, 18 May, 1919. Bill dark green, yellowish tips; legs and feet olive-brown; knee-joint red.
- b. Imm. ♀. Warren River, 28 March, 1919. Bill mottled green and black; base of lower mandible green; frontal plate *black*; feet and legs grass-green.

Porphyrio bellus.

The Blue Bald Coot is common about the swamps and river-banks of the south-west. When at the Warren River, Mr. Higham and I noticed one of these birds (presumably the same one) on several occasions feeding on a tussocky flat, and as we approached it by a cattle-path, it crouched down and allowed us to pass within a few feet. This was a very poor attempt at concealment, no use being made by the bird of large grass tussocks close to it. In Mathews's 'Birds of Australia,' vol. i. pt. 5, p. 238, the plate of a male bird collected by myself at Albany,

8 February, 1905, had green feet, legs, and joints, and in my description of an adult male the tarsi and feet are given as olive-green. There are three skins in my collection here, labelled respectively :—

- a.* ♂. Gordon River, South-West Australia, 4 April, 1911. Legs and feet yellowish pink, joints brown.
- b.* ♂. Lake Muir, 16 March, 1919. Feet and legs salmon-pink, joints greenish.
- c.* Imm. ♀. Albany, 26 December, 1913. Feet and legs reddish olive.

So there appear to be considerable variations in the colouring of these parts.

The aboriginal name for this species in the south-west is "Moolar."

Fulica atra australis.

Western Coots appear to be local in distribution in Western Australia, and are not common according to my experience. A pair was seen on the Vasse River, 12 February, 1916, a small party on a pool at the Lyndon River, 28 August, 1916, and one on a pool near the Minilya River on 5 September, while several occurred near the mouth of the Warren River in March 1919.

Podiceps cristatus christiani.

Australian Tippet-Grebes were seen on Lake Muir in March 1919, a small party of them keeping far out in the lake. No tippetts were observed through my binoculars. Mr. J. Drummond, of Perth, told me he saw a specimen that was shot by one of a duck-shooting party at Chittering on 27 March, 1916, when he was one of the party.

Tachybaptus ruficollis carteræ.

Western Black-throated Grebes were observed at Lake Muir and other localities during my trip.

Polioccephalus poliocephalus cloatesi.

Western Hoary-headed Grebes were seen on a large pool on the Lyndon River, 27 August, 1916, and there were many adult and immature birds on the Vasse River in April 1919.

Petrella capensis australis.

When I was on Dirk Hartog Island, 4 October, 1916, there was an exceptionally heavy gale (for that district) blowing from the north to north-west. The Government "fish" steamer, the 'Una,' left Fremantle that evening for Shark Bay, but had to put back, owing to the tremendous seas outside. Mr. J. H. Mead, who at that time owned the Peron Peninsula sheep station, was a passenger on the 'Una,' which eventually arrived in Shark Bay on 10 October. He told me that when the steamer again left Fremantle the captain of it called his attention to the numerous "Cape Pigeons" that followed and flew around the 'Una' until close to Geraldton. The captain knew the birds well, and said he had never previously seen them off that part of the Australian coast. There are no details of any definite record of this species occurring in Australian seas in Mathews's 'Birds of Australia,' and his Reference List of 1913 states: "*Range. East Australia and New Zealand seas*"; so I think the above is worthy of record and is quite reliable.

? *Nealbatrus chlororhynchus.*

No Albatroses were obtained, but when going by whaling-tug to Carnarvon on 12 September, 1913, I saw a good many soon after getting clear of the Point Cloates reefs. The birds seen had dark blackish wings and backs, white heads, necks, and under parts, and, through my binoculars, their bills all appeared to be quite black, as is the case in *Nealbatrus chlororhynchus carteri*, which was got close there.

Chlidonias leucoptera grisea.

On 2 June, 1919, Mr. W. B. Alexander of the Western Australian Museum and I saw many Australian White-winged Terns flying and feeding over the tall rushes growing in Herdman's Lake near Perth. The first recorded occurrence of these birds in Western Australia was early in 1917 (see Mr. Alexander's account in 'Emu,' vol. xvii. p. 95).

Hydroprogne caspia strenua.

On 4 September, 1913, I found a young example, in down, of the Australian Caspian Tern at the mouth of the Yardie Creek. Other birds were breeding on the tops of bare sand-drifts at Point Cloates, 5 July, 1916.

Thalasseus bergii gwendolenæ.

Western Crested Terns were plentiful at Point Cloates and Maud's Landing on the three visits made there; also at Cape Naturaliste and Cape Leeuwin, while a few were seen at Lake Muir, where a specimen was shot for identification.

Bruchigavia novæhollandiæ longirostris.

Western Silver Gulls were numerous on all parts of the coast visited. A good many were seen at Lake Muir in March 1919, where they sometimes breed on the small islands in the Lake.

Gabianus pacificus georgi.

The first date on which I saw Western Pacific Gulls at Carnarvon was in September 1913. They are not plentiful, but have now extended their range to Point Cloates, where none were seen during my thirteen years' residence. My own opinion is that they went there to feed on the carcasses of the hundreds of dead whales that lay along the beach from Maud's Landing to the North-West Cape in 1913, the blubber having been stripped from them by the whalers on the factor ship who then set them adrift. Some of these birds were seen at the whaling station near Point Cloates on 6 September, 1913.

Arenaria interpres oahuensis.

A few Eastern Turnstones were seen at Point Cloates on 28 June, 1916.

Hæmatopus ostralegus picatus.

Pied Oystercatchers were common on all trips from Shark Bay to North-West Cape. This species is not nearly so numerous in the south-west as it is further north.

Zonifer tricolor gwendolenæ.

Western Black-breasted Plovers were constantly seen about Broome Hill and forty miles east of that place. Also at Woolundra and around there, one hundred and forty miles east from Perth, in May 1919. When staying at Busselton on the Vasse River in April 1919, I noticed small parties of them on grassy cleared land, and having never seen these birds before in that locality on my numerous visits there, I enquired of the farmer who owned the land how long the Plovers had been there. He told me that a pair of them had arrived a few years previously and that they had increased in numbers very quickly.

Squatarola squatarola hypomelas.

Eastern Grey Plovers were numerous and in flocks during the last week of September 1913 on the wide sand and mud-flats at the mouth of the north branch of the Gascoyne River. Many of them still retained much of the black plumage on their breasts. I never saw such a "wave" of waders returning from their breeding-quarters as there was during the above week.

Pluvialis dominicus fulvus.

A party of six Lesser Golden Plovers were seen at Carnarvon on 6 September, 1913, and by the end of that month the birds were very plentiful along the beaches.

Pagoa leschenaulti.

From 24 September, 1913, and the end of that month, Large Sand-Dotterels were seen in flocks on the tidal estuaries of the Gascoyne River and adjacent beaches. Many went further up the river, feeding on the edges of a large freshwater pool. I picked up a dead bird on the bridge of the light railway for the jetty, across the south branch of the Gascoyne River, that had evidently been killed by striking one of the telephone wires.

Eupodella vereda.

A small flock of Oriental Dotterels was seen on 2 September, 1911, on the large salt marsh at Maud's Landing. I was unable to obtain any specimens, as they were very wild. They had evidently just arrived, for I had crossed the marsh daily from 23 August without seeing any. When returning to Carnarvon by mail coach on the same trip on 13 September, I saw some of these Dotterels on a scrubby flat about thirty miles inland. The driver kindly waited while I tried to shoot a specimen, but I could not get within gunshot. When at Point Cloates on 8 September, 1913, the first party of these birds was seen on a salt marsh there.

Leucopolijs ruficapillus tormenti.

A few Red-capped Dotterel were seen on 2 August, 1916, at a mangrove swamp south of the North-West Cape, and on 21 August I came upon four young birds, only just hatched and attended by the mother, on the salt marsh at Maud's Landing. Later in the day half-grown young birds were seen at the same marsh, which contained a few shallow pools of salt water. On 2 March, 1916, I saw many on the beach at Cape Mentelle.

Charadrius cucullatus tregellasi.

Western Hooded Dotterels were plentiful along the beach near Cape Mentelle in March 1916, and some were seen at Cape Leeuwin early in April 1919. When I shot one and only winged it, the remainder of the birds showed great concern for their wounded companion, and would not leave it until I walked among them to pick it up.

Elseya melanops melanops.

A few Black-fronted Dotterels were seen at Broadwater, near Busselton, on 15 February, 1916, and at a stock tank on my Broome Hill property on 8 January, 1916.

Himantopus leucocephalus assimilis.

A few Northern White-headed Stilts were seen at a pool near the Minilya River on 8 September, 1911.

Cladorhynchus leucocephalus.

No Banded Stilts were seen by me, but when at Carnarvon in 1916 Mr. Angelo told me that he had seen hundreds in 1915 at a salt marsh and mangrove creek there, and had shot several. Also that he had observed them on previous occasions at the same place.

Numenius cyanopus.

A party of nine Australian Curlews was seen at Carnarvon on 6 August, 1911, and many more in September of that year. On 11 August, 1913, these birds were fairly common at Carnarvon and they were very numerous late in September. Several were seen there on 5 June, 1916, and also at Point Cloates on 28 June, and a pair of them on 2 August near the North-West Cape.

Phæopus phæopus variegatus.

Eastern Whimbrel began to be numerous at Carnarvon by 16 September, 1913, on which date I shot three, which were all *females*, and had been feeding on small crabs obtained in a mangrove creek. By the end of that month they were seen in large flocks at the north mouth of Gascoyne River. On 5 June, 1916, several were seen at Carnarvon, and a pair occurred near the North-West Cape on 2 August. It is curious that I never saw any of these birds at Point Cloates; perhaps it is because there is no mud there.

Vetola lapponica baueri.

Eastern Barred-rumped Godwits were fairly common at Carnarvon on September 1913, and on 1 October were feeding with Whimbrels in large flocks. The Godwits seem to put the whole of their heads under water while feeding more often than most waders do.

Heteractitis incanus brevipes.

Grey-rumped Sandpipers were plentiful on the Carnarvon beaches during the last week of September 1913 and also on 10 June, 1916, when some specimens were obtained. A few were seen on 2 August, 1916, at mangrove flats a little south of the North-West Cape.

Actitis hypoleucis.

Common Sandpipers were more plentiful about Carnarvon in September 1913 than ever previously observed by me there. Two were seen on the Vasse River—12 February, 1916, and several at Carnarvon on 1 June, 1919, and also in September of that year. This bird continually “bobs” its head up and down.

Terekia cinerea.

Several Terek Sandpipers were seen at Carnarvon on 21 September, 1911, and specimens were obtained.

Glottis nebularius.

Two Greenshanks were seen at Carnarvon on 21 September, 1911, and one on 29 September at a freshwater pool in the river. Odd birds were also seen about Carnarvon in September 1913. I got very badly bogged there in trying to retrieve one shot in mangroves.

Rhyacophilus glareola.

Three Wood-Sandpipers were at the artesian-bore swamp, east of Maud's Landing, on 4 September, 1911. They were very wary, but one was shot for identification. This is the only occasion on which I have seen this species during my thirty odd years' residence in Australia. The scapularies of the above specimens are boldly “toothed” on the outer edges, and it looks as if the white marks, which presumably had been there to correspond with those present on the inner edges, have been either worn away or bitten out by the bird.

Crocethia leucophæa tridactyla.

Several Eastern Sanderlings were observed about Point Cloates at the end of June 1916, and one was seen at Cape Mentelle on 2 March, 1916.

Pisobia ruficollis.

Large flocks of Red-necked Stints were on the Carnarvon beaches the last week of September 1913. Many of them still retained some of the rufous breeding-plumage.

Erolia ferruginea chinensis.

Many Eastern Curlew-Sandpipers were seen about Carnarvon 21 September, 1911, and on 11 August, 1913. a flock of about fifty were feeding at the edge of a freshwater pool in the Gascoyne River two miles from the sea.

Canutus canutus rogersi.

Eastern Knots were fairly common at Carnarvon from 21 September, 1911, to the end of that month, and also during the same period in 1916. A specimen shot on 20 September, 1916, still retained some of the rufous breeding-plumage on its under parts and blackish feathers on the mantle.

Anteliotringa tenuirostris.

Great Knots were feeding with the above species, and specimens were obtained 20 September, 1911, and 20 September, 1916.

Glareola maldivarum orientalis.

I have a skin of an Oriental Pratincole sent to me for identification by Mr. G. Baston, who shot it at Maud's Landing 13 May, 1912. This species used to be seen by me at Point Cloates in stormy weather with northerly winds.

Orthorhamphus magnirostris neglectus.

A pair of this fine and very wary species, the Long-billed Stone-Plover, was seen on the beach on 5 September, 1913, a few miles south of Yardie Creek. After much trouble I shot one of them, but it fell far out to sea. Another pair was seen on 27 July, 1916, about twenty miles north of the Yardie Creek (at the shingly ridge where I found an egg of this bird on 24 October, 1900). As I could not get near the birds, I told the blackfellow with me to make a long detour past them, and slowly drive them towards me to where I was hidden behind a rock on the beach. The ruse was successful, and I obtained the female, which was breeding. Another pair was seen further north on 4 August.

Austrotis australis derbyi.

Owing to the drought in 1911, Australian Bustards were rarely seen, but they were plentiful in 1913 and 1916 from Shark Bay northwards. When I was enjoying the hospitality of Mr. Guy McLeod at the Minilya River in September 1916, he drove me out in his motor car in order to try to shoot a "Turkey" or two. The method employed is to "rush" the motor straight towards a feeding bird, so as to get within shooting range, and stop the car before the heavy creature can rise. We secured a fine Turkey that weighed 16 lbs. and was 7 feet in expanse of wing.

Carphibis spinicollis.

Straw-necked Ibises were numerous in the Minilya River district in August 1911, when a drought prevailed. On 1 September, 1913, I picked up the remains of an immature bird near one of the pools in the stony bed of the Yardie Creek. It must have been reared somewhere in that area the same year, but I saw no living Ibises on that trip. They were very plentiful on the Minilya Station in 1916, and in April 1919 I saw several about the Vasse River, mostly single birds or pairs. I was informed on good authority that this species made its first appearance in the Albany district in 1892, and caused much comment as to its identity; also that it was then plentiful about Cape Riche, fifty miles east of Albany. [The first recorded appearance of Straw-necked Ibises in Western Australia was at Derby, in the far north, by Captain Bowyer Bower in 1886, the next to the south at the Minilya River in 1888 (see 'Zoologist,' July 1889, Carter), and the first record of *breeding* in Western Australia was in October 1900 (see 'Zoologist,' July 1901, Carter).]

Platibis flavipes.

On 20 April, 1911, I shot one of a pair of Yellow-billed Spoonbills at a pool near the Minilya River, the only occasion on which I have seen this species; though for several years previous to that date I had been told of White *Ibises* having been seen; but I now think that Spoonbills had been

mistaken for Ibises, as, when viewed at a certain angle, the beak of a Spoonbill appears to have the same curve as that of an Ibis.

Egretta garzetta immaculata.

A pair of Lesser Egrets were seen at a large pool on the Lyndon River on 28 August, 1916. I was unable to obtain a specimen, as they were very wary, but could plainly see their black bills and legs through my binoculars.

Demiegretta greyi.

On 26 August, 1913, a pair of White Reef-Herons was seen at the Yardie Creek. On 5 July, 1916, I shot a white specimen on the beach at Point Cloates, undoubtedly breeding. On 23 August, 1916, I took three fresh eggs from the nest of a pair of Blue Reef-Herons, built on a low cliff, fifty miles south of Point Cloates. When Mr. Higham and I were at Cape Leeuwin on 9 April, 1919, he shot a Reef-Heron, and when I compared it, in November last, with other specimens in my collection from further north, I found that it differed from any of them; so I sent it on to Mr. Mathews with other examples, calling his attention to the differences. He described it as *Demiegretta matook carteri* subsp. nov. in Bull. B. O. C. vol. xl. p. 75.

Nycticorax caledonicus hilli.

Australian Night-Herons were extremely abundant, both in adult and immature spotted plumage, on the Vasse River in February and March 1916, but I did not see a single bird there in April 1919.

Butorides striata stagnatilis.

Only one Little Mangrove-Bittern was observed. It was a breeding male, and was obtained in some mangroves near Carnarvon on 23 September, 1911, but I could find no nest. As is usual with this bird, it was very wary, and after being flushed several times and eventually "marked down" in a small patch of mangroves, it assumed an erect position, with its bill pointing upwards, and was then difficult to see amongst the straight yellowish stems of the young mangroves.

Dupetor flavicollis gouldi.

A few Yellow-necked Bitterns were seen about the Vasse River, but they were not so common as in previous years.

Botaurus poiciloptilus westralensis.

The above note also applies to the West Australian Bittern.

Chenopsis atra roberti.

Black Swans were numerous on Lake Muir in 1916 and 1919, while a good many were seen at Augusta (near the mouth of the Blackwood River) and also on the Swan River. The aboriginal name for this species about Lake Muir is "Mar-lee."

Casarca tadornoides australis.

Mountain Ducks were very scarce at Lake Muir in March 1919, where they usually occur in thousands, the reason perhaps being that the lake was fuller then than was ever previously known, and the water was almost fresh. This fulness of the lake was remarkable, as the 1918-19 season was most exceptionally dry and hot. These ducks were plentiful there in January 1916, when the water was very low and salt, so low that it was almost impossible to shoot any, owing to absence of cover from which to approach the edge. Very large flocks of these birds were seen on 24 May, 1919, at a salt lake one hundred and forty miles east of Perth.

Anas superciliosa rogersi.

Black Ducks were plentiful in the large freshwater lakes near Lake Muir in January 1916. I saw a brood of nine young in down only a few days old on 29 January, and Mr. Muir told me that he saw two similar broods on other swamps about the same date. In the south-west area this species usually breeds from July to September. From the middle of April until the end of May in 1919 there were hundreds of wild Black Ducks on the artificial pools in

Queen's Gardens, East Perth, and also in Hyde Park Gardens, North Perth. On one occasion I counted roughly six hundred of them on a pool about one hundred yards in diameter. They crowded to the banks to be fed on biscuits etc. by visitors and children, but would not actually feed from the hand, though I constantly had odd birds venture within three or four feet of my outstretched hand holding food out for them. On the approach of evening the birds all left the Gardens to feed on the shallow mud-flats of the adjacent Swan River, where they again assumed their usual shyness. As soon as the first winter-rains fell (in early June) they all left the Garden pools.

Virago castanea.

Green-headed Teal were very scarce at Lake Muir in January 1916, and difficult to obtain, owing to the lowness of the water. While I was there a shooting party obtained about six of them on a freshwater swamp adjacent to the lake. One of the party told me that these birds go to this small secluded swamp for shelter in windy weather. I did not see a single individual at Lake Muir in March 1919, perhaps because the water was then fresh and quite drinkable. When I was at Carnarvon in 1916, Mr. Angelo told me that he had often seen and shot Green-headed Teal in a large and deep mangrove creek some miles north of Carnarvon, but that he had never seen any *away from mangroves*.

Early in August 1916 I camped at a large patch of mangroves south of the North-West Cape, hoping to obtain some specimens and make observations, as I had often seen these birds there in previous years. However, there was only one pair, and after much trouble I shot one of them, just when it was almost dark, after sundown, at a range of a few yards. It was a female bird just assuming the chestnut-coloured breast, but had no green on its head or neck and was not breeding at the time. A few days afterwards, when I was staying with Mr. A. Campbell, who lives further north, he told me that he frequently saw

Green-headed Teal at these mangroves, and has obtained their nests and eggs. The nests are usually in the scrub and herbage around the mangrove swamp.

Virago gibberifrons rogersi.

Some immature Western Teal were shot at a pool (fresh-water) twenty-five miles up the Gascoyne River on 14 September, 1913. A few were observed at Lake Muir in January 1916, but no specimens could be obtained, and others, with small young, were seen at a freshwater pool near the Minilya River on 10 September, 1916.

Stictonetta nævosa.

Some Freckled Ducks were shot on 14 September, 1913, on a pool in the Gascoyne River.

Nyroca australis.

On two occasions in May 1919 I saw a single White-eyed Duck swimming in the pools in Queen's Gardens, Perth, in company with hundreds of Black Ducks, as previously mentioned, but it was very shy and would not come near the banks.

Biziura lobata.

Musk-Ducks were common on all the lakes and swamps visited in the south-west area. In January 1916 immature birds of various sizes were noted in the freshwater swamp at Lake Muir. When I was sitting by the edge of one of these swamps, well concealed amongst some paper-bark scrub, I was one day able to watch an old drake "displaying" on the water. Its head was thrown well back, and its tail slowly spread upwards over its back; then by simultaneous movements the head was thrust forwards to the water, but apparently not *under* it, the widespread tail was jerked down to the water behind, and each foot thrust out sideways with outspread webs, just on the water surface, the result being a very resonant "plonk"; but what actually produced this noise it was impossible to decide—whether it was vocal or caused by tail and feet meeting the water.

Phalacrocorax carbo novæhollandiæ.

Black Cormorants were observed in the south-western districts, and some specimens obtained, but none of them had white patches on their thighs, perhaps because my trips did not coincide with the breeding-seasons.

Mesocarbo ater.

Little Black Cormorants were unusually plentiful round Carnarvon in September 1911, both in mangroves and at pools in the Gascoyne River. Several were observed lying dead, and upon post-mortem examinations were found to be in a very emaciated condition, with inflamed kidneys. A few of these birds were seen on the Vasse River in February 1916.

Hypoleucus varius perthi.

Pied Cormorants were common from Shark Bay and along the coast to North-West Cape. [Mathews's Reference List, 1913, includes South-West Australia in the range of both this bird and *Hypoleucus fuscescens*, and neither of them is given as occurring in Mid-West or North-West Australia, where *H. varius* is abundant. I believe that *H. fuscescens* has not been recorded west of Albany (if as far as there).]

Anhinga novæhollandiæ.

No Darters were seen on any of my trips until 2 June, 1919, when Mr. W. B. Alexander and I saw from twenty to thirty in the course of a walk round Herdman's Lake and an overflow from it. Most of those noticed were perched on snags, or dead trees in the water, with outstretched wings. It is rather curious that until the above date I had only seen one living bird during my long residence in Australia. Mr. Alexander told me that some of these birds can generally be seen at the above lake.

Sulita serrator dyotti.

No Australian Gannets were observed, and no one of the many persons with whom I conversed on the several trips could tell me of any having been seen along the south-west coasts to the west of Albany.

Catoptropelicanus conspicillatus westralis.

A few Western Pelicans could be seen almost daily about the mouths of the Gascoyne River, and on 13 September, 1913, I saw a flock of about one hundred.

Circus assimilis rogersi.

Lesser Spotted Harriers were common from Carnarvon northwards in 1913 and 1916, as they usually are there after good winter rains. On 8 September, 1911, I saw one of these birds strike a Brown Hawk down to the ground as it was passing in front. It seemed to be merely a wanton action, as the Harrier took no notice of the fallen Hawk.

Uropiza fasciata cruenta.

Lesser Goshawks were noted in most districts visited on my different trips. A particularly fine female was obtained by me at the Vasse River in February 1916, measuring: total length 500 mm., wing 320 mm. On 30 June, 1916, one shot at Point Cloates had its crop full of grasshoppers.

Uroaëtus audax carteri.

Western Wedge-tailed Eagles were occasionally observed, and are still fairly numerous; but they are gradually decreasing, owing to constant persecution. When at Maud's Landing in September 1911, Mr. C. French gave me an egg that he said he had obtained from a nest near that place on 12 August, which is late for this species to have eggs. In January 1916 the wife of a neighbour who lived close to my Broome Hill Station told me that she had recently had three fine tame geese killed by these birds close to her house. On 12 August, 1916, I climbed above a nest on a ledge of cliff in the ranges north of Yardie Creek, and saw two young birds in down in it. One of the parents had flown from the nest and circled round me, which called my attention to it. Several were seen about Augusta in March 1919, and when at Woolundra in May I saw one of these Eagles flying with something in its feet, which it eventually dropped as I approached. It was a freshly-killed full-grown rabbit.

Cuncuma leucogaster.

White-bellied Sea-Eagles were observed in several places from Shark Bay to the North-West Cape. Some were also seen at Augusta in March 1919. On 12 August, 1911, a pair of eggs was taken from a nest which Ospreys had originally built, not far from Maud's Landing. This nest was fully six feet in height, on a pinnacle of rock. On 26 August, 1913, I saw young birds in a nest on a high cliff at Yardie Creek, where these Eagles had reared their broods for many years, when I resided at Point Cloates. On this occasion I was taking a series of photographs of the wonderful creek, and several times, while standing on the edge of a high cliff, one of the adult Eagles came swooping from *behind* me, almost touching me with the tip of its wing as it passed. At last I became annoyed with the bird, as its actions might have led to a fatal accident, so shot it. It was a female, and the same afternoon I saw the male brooding over the young in the nest. On 26 June, 1916, I took two incubated eggs from a nest built on the edge of a cliff some miles south of Point Cloates, where these birds had nested for many years. When passing there on my return journey on 19 August, the same year, there was another pair of eggs in the nest, also much incubated.

When staying with Mr. Campbell near the North-West Cape in August 1916, he told me that he had several times seen a wholly white Sea-Eagle in the Exmouth Gulf just round the Cape. The aborigines also told me of it, giving their own name for it, "Tantagee," and were very anxious for me to shoot it, as being such a rarity.

Haliastur indus leucosternus.

White-headed Sea-Eagles are common along the coast from Carnarvon northwards, especially in the vicinity of mangroves. The aboriginal name in the North-West Cape district for this species is "Indee-narrangee." When at Carnarvon in September 1913 I frequently saw a party of four birds flying together, all in immature plumage, but they could hardly be one brood. On 1 August, 1916, I climbed

to a nest about twenty-five feet above the water, in a large dead mangrove-tree a little south of the North-West Cape. The nest was bulky and made entirely of sticks, lined with small twigs. It contained one egg, much incubated.

Haliastur sphenurus.

The Whistling Eagle is fairly common about the Lower Swan River, but is not often seen south of that district. In the Gascoyne and more northern areas it is numerous, and was particularly so about the Minilya River in September 1916, where it was flying about in small flocks of twelve to twenty in number. It also was commonly seen there in September 1911, and was rather a nuisance at times, as on one occasion when I had shot a pair of Stilts (*Himantopus leucocephalus*) at a pool, a Whistling Eagle swooped down in front of me, and with its feet picked one of the dead birds off the surface of the water within a few yards of me. Another day I shot an Emu at the same pool and roughly skinned it. As I was carrying the skin on my shoulders, several of these Eagles followed me and kept making swoops down at it until I shot one of them. [Recorded in "Food of Diurnal Birds of Prey," Emu, vol. xviii. p. 93.]

Elanus notatus parryi.

Two Black-shouldered Kites were seen at a pool near the Minilya River on 1 September, 1916. Mr. McLeod told me that these birds had been very numerous there a few weeks before that date.

Falco longipennis murchisonianus.

Several Murchison Little Falcons were seen about Lake Muir in March 1919. They are more plentiful there than in any other locality I have visited.

Ieracidea berigora occidentalis.

Brown Hawks are by far the commonest birds-of-prey in Western Australia, and were seen daily. I shot one at Lake Muir on 21 January, 1916, that apparently had designs on

the poultry at the homestead, but examination of its crop proved that it had been feeding entirely on various grubs and large caterpillars.

Cerchneis cenchroides unicolor.

Western Australian Nankeen-Kestrels were observed in most districts, but most numerous in the mid-west. In 1911 these birds were dying from some disease about the Minilya River. I saw several dead, and Mr. McLeod told me that he had also noticed many.

[I have never seen a Kestrel resembling the *Cerchneis unicolor* of Milligan, or heard of any other similar birds being obtained, and consider that the figuring of that "sport" as the *Western Kestrel* in Mathews's 'Birds of Australia' is very misleading.—T. C.]

Pandion haliaëtus cristatus.

Only two White-headed Ospreys were seen in the south-west area—viz., one near the historic nest of Mr. A. J. Campbell at Cape Mentelle in March 1916, and one at the mouth of the Blackwood River in April 1919. This species is not common there, as it is further north. On 21 August, 1913, I saw two eggs in a nest near Cape Farquhar, and one on 6 September north of Point Cloates. On 13 July, 1916, I found a bulky nest, about three feet in length, built on bare sand at sea-level, within a few yards of high-water mark, near Point Cloates. It contained a handsome pair of eggs. Two other nests were built on the flat tops of iron windmill towers, the wheels not being attached at the time. I have three photographs by Mr. Geo. Baston, formerly living at Maud's Landing, of the nest of an Osprey built on the top of the crane at the end of the long jetty there, and I have two eggs that he took from that nest on 8 July, 1912. He told me when I was there in 1913 that on four occasions he had to pull down the nest in order to work the crane, but the birds persisted in rebuilding until the eggs were laid, when he was again obliged to destroy the nest, and they then left.

Spiloglaux novæseelandiæ mixta.

The Pallid Boobook-Owl occurs southwards to the Gascoyne River, where I obtained specimens on different trips, all of them being much paler than the south-west subspecies *ocellata* and easily distinguished from it. These birds fly far and strongly in bright sunlight.

Spiloglaux novæseelandiæ ocellata.

Western Boobook-Owls were occasionally seen in the south-west area.

Tyto alba delicatula.

Only one Barn-Owl was seen, which was flushed from the shade of a large white-gum tree at the Gascoyne River on 13 August, 1911. It flew a considerable distance in strong sunlight, and could not be again sighted.

Tyto novæhollandiæ perplexa.

While staying with a friend in Busselton in February 1916, I noticed the wings of a Western Chesnut-faced Owl on the wall of a room, and enquired their history. I was told that some time previously several of the domestic fowls had been killed from their perches out in the open behind the house, close to which the bush timber grows. A watch was kept, and the above Owl was shot in the act of seizing a fowl. When I was travelling from the Margaret River to Augusta on 10 March, 1916, by motor mail between 9 and 10.30 P.M., several miles of the Karri Forest were burning on each side of the road and right up to it. Many large Owls were observed, flitting about the road ahead of the car, and sometimes over it, within a few feet of us. They were white on the body, and in all probability they were of this subspecies; they were catching small animals that had sought shelter on the road from the fire. I distinctly saw one Owl alight on the ground a few yards ahead of us seize something and then fly away with it. Unfortunately, my gun was in its case at the bottom of the car, beneath the mails and other cargo, and the mailman was two hours behind time. He told me that he frequently saw Owls when travelling

there at night. When Mr. Higham and I visited Augusta in April 1919, we failed to see any Owls, although we went out along this road several times after dark on purpose to obtain specimens. There were no forest fires there on this occasion. Referring to my remarks in 'Emu,' vol. iii. p. 35, respecting some large unidentified Owl that occurs in the ranges of the North-West Cape peninsula, I had corroborative evidence on my trip there in 1916, when I was camped close to the foot of the ranges on 28 July with two black fellows sleeping a short distance from me. I was roused from my sleep by weird cries that resembled the howling of dingoes (wild dogs). After listening for a few moments, I heard the blacks excitedly talking, and I called to them to ask if the dingoes were crying. They at once replied: "Nothing dingo, that fellow debbil (devil) bird." When I was staying at Mr. Campbell's station a few miles off, shortly afterwards, he asked me if I knew what sort of bird it was "that howls at night just like a dingo." He said that he had heard the noise on several occasions, but had never seen the bird.

Glossopsitta porphyrocephala whitlocki.

Western Purple-crowned Lorikeets were exceptionally scarce about Broome Hill in March 1919, owing to the absence of blossoms on the white-gum trees, the honey of which and other varieties of Eucalyptus is their favourite food. The only district where they were common that year was around Augusta, where the red-gum trees were in full bloom. These Lorikeets do not occur as far north as Carnarvon.

Calyptorhynchus magnificus naso.

Red-tailed Cockatoos were very abundant about Lake Muir in January 1916, so much so that when shooting for food I sometimes shot them for this purpose, as they are easily obtained, but there is not much meat on them. They feed largely on the seeds contained in the extremely hard "nuts" of the red gum, and betray their presence at a long

distance by their constant querulous cries. A few small flocks were seen in 1919 about Lake Muir and the Blackwood, Collie, and Warren Rivers, but this fine species has much diminished in numbers during my experience. The aboriginal name in the Harvey River district is "Korridg-e-cup"—hence the name of a township there. Further south, towards Albany, it is "Koo-rak."

Zanda baudinii.

The White-tailed Black Cockatoo was seen in most of the south-western districts, where the aboriginal name for it is "Oo-lack."

Ducorpsius sanguineus westralensis.

When I arrived at Carnarvon early in August 1911, my attention was at once attracted by thousands of Bare-eyed Cockatoos feeding on open flats right up to the outskirts of the town. In places the ground was literally white with the birds, which were busily engaged in cracking off the sharp-pointed hard husks of the "Double-gee" seeds (*Emex australis*) and eating the seeds. When watching the birds doing this, it was very curious to hear the constant "crackling" noise caused by hundreds of bills all hard at work at the same time. The plant itself is not a native of Australia, but is supposed to have been introduced from South Africa. It is now classed as a noxious weed, as it is rapidly spreading over large areas of country, and is responsible for laming many sheep and cattle, as the seed-vessels get in between the divisions of the hoof, causing festering sores, so that the unfortunate animals cannot move about to feed. The local Roads Board had recently passed a bye-law to protect the Cockatoos on account of the supposed good they were doing in eating the seeds, and I was warned not to shoot any of them. However, I believe in the theory that "what eats seeds, spreads seeds," so I shot two birds, and on dissection of them found, as I had expected, that many seeds were swallowed whole and not bitten up; therefore it is probable that some are voided intact and in a fit state

for germinating. I explained this to the Chairman of the Roads Board, showing him entire seeds taken from a bird, but he ridiculed the idea of their growing; however, when I saw him again in 1913, he said that he had altered his opinion, and the law had been repealed. When at the Minilya River in early September 1911 these birds had young or eggs in most of the white-gum trees that held suitable nesting hollows, and when I was there again at the same time (1 to 10 September) in 1916 the same state of affairs prevailed. A black fellow and I climbed to many "nests," and they all contained young birds or incubated eggs. On 22 August, 1916, I saw a flock of about two hundred of these Cockatoos at the Yardie Creek, where they breed in the crevices of the cliffs. When staying with a friend near Perth early in that year, he told me that one of these birds which he had kept as a pet for nine years had recently laid an egg in its cage, over which it brooded and made a great fuss.

Licmetis tenuirostris pastinator.

A few Western Corellas were seen at Lake Muir in January 1916, and I shot a pair from a tall yate-tree (*Eucalyptus cornuta*). Both of them had many grains of wheat in their crops, mixed with honey obtained from *Eucalyptus* blossoms. None were seen at Lake Muir during my visit there in March 1919. When staying at Augusta in March 1916, I saw a flock of five or six flying above the river. The residents there told me these birds are not commonly observed.

Eolophus roseicapillus assimilis.

When I was at the Minilya on 19 August, 1911, the Westralian Galahs did not appear to be breeding (a drought was prevailing at the time), but every day scores of them were drinking at the water-trough for horses etc., close to the homestead and other buildings. They were very tame and made a pretty sight. From 1-10 September, 1916, they were breeding freely at the Minilya, and all the nesting-sites examined contained small young birds.

Leptolophus hollandicus.

Quarriors were scarce in the Gascoyne and Minilya districts in September 1911, but in the same month in 1916 they were abundant there, and about 10 September many nesting cavities near the Minilya River were examined, which all contained young birds in various stages of growth. The small ones were covered with down of a dull *yellow* colour, very similar to that of a white duckling of corresponding age.

Platycercus icterotis.

Yellow-cheeked Parrots were quite scarce when I was at Broome Hill and the vicinity in February and March 1919. In former years they were abundant there and in most localities in the south-west area, but although I traversed a great part of it, I do not think that a dozen of these birds were observed. A very beautifully-plumaged male was obtained on the Warren River on 31 March that appeared to be smaller than those occurring about Broome Hill. I do not think that this species occurs as far north as Geraldton, and when I was staying at Mullewa and Mingenow in 1904 none were observed, while Milligan does not mention the bird as being seen on his trip to Yandanooka in the same year through the same district. I do not think that female birds assume the brilliant colouring of the males.

Barnardius zonarius.

"Twenty-eight" Parrots obtained on the Blackwood River, near Bridgetown, 17 February, 1916, had distinct yellow ventral bands, and those examined at Collie a few days afterwards had only slightly yellow bands. These Parrots were not often seen in the south-west in 1919, owing to the exceptionally severe bush fires in all districts. They were plentiful near Woolundra in May 1919, and those obtained there resemble the subspecies *occidentalis* more than the south-western form. The south-western aboriginal name is "Towerrin." Mr. Matthews described the Woolundra bird as *Barnardius zonarius woolundra* subsp. nov., Bulletin B. O. C. vol. xl. 1920, p. 44.

Barnardius zonarius occidentalis.

Northern "Twenty-eight" Parrots were seldom noticed about the Gascoyne River near Carnarvon in September 1911, but very fairly plentiful in September 1913, and were then rearing their young. A few were seen there in September 1916, and a good many in the ranges north of the Yardie Creek in July and August, but they did not appear to be breeding. The aboriginal name there is "Mullin-goora."

Purpureicephalus spurius carteri.

Red-capped Parrots were very numerous at Collie in February 1916, and were destroying a lot of fruit in the orchards, where they are locally known as "Hook-bills." Only two specimens were obtained on my 1919 trip, when they were very seldom seen—viz., two at Gnowangerup (east of Broome Hill), two on the high road when I was motoring near Brunswick, and one at Lake Muir. (I was keeping an especial look-out for this species, as I wanted specimens.) I do not think that the females of this species assume the rich colouring of the male birds, and immature males are rather brighter in colour than the females. The same applies to *Platyercus icterotis*.

Psephotus varius exsul.

A pair of Western Varied Parrots were shot on 2 September, 1916, in some thick scrub near the Minilya River. I had not seen any of these beautiful birds since 1887, when they were common on the Gascoyne River.

On 23 May, 1919, when I was staying with my friend, Mr. Bruce W. Leake, who is a keen field-naturalist, he told me of having seen some small Parrots near the salt lakes at Woolundra that were strange to him, so we drove out to investigate, and found them to be of this subspecies. There were a good many of them in small parties of three to seven, but they were very wary and shy. However, three specimens were obtained, which had their crops full of wheat grains bitten into small pieces, with many small grass seeds.

Neonanodes elegans carteri.

Allied Grass-Parrots were very scarce in February and March 1919 about Broome Hill, where they were fairly common in previous years. The only examples seen on this trip were a few perched on the telegraph-wires alongside the Gnowangerup road on 18 February, from which place I was returning to Broome Hill by motor mail. I walked out, a day or two afterwards, to the spot where I had seen them, but could not find any.

Neonanodes petrophilus petrophilus.

Western Rock-Parrots seem to be getting rapidly scarcer along the south-west coasts. None were seen in the vicinity of Cape Mentelle in March 1916, and only one was observed at Cape Leeuwin in April 1919, but some of the lighthouse employees there told me that sometimes these birds were fairly common there. They were numerous in parts of Shark Bay during my visit there in 1916.

Melopsittacus undulatus.

Very few Betcherrygars were seen about the mid-west districts in 1911, but they were plentiful in 1916, which was a year of good rains.

Podargus strigoides brachypterus.

Only a few Western Frogmouths were seen in the course of my four trips, and they were mostly in the vicinity of Broome Hill, and usually disturbed from sleeping on the ground in the dense Ma-lock scrubs.

Ægotheles cristata cristata.

No specimens of Owlet-Nightjars were obtained or seen, but they were heard in many localities in the south-west area, mostly about Broome Hill and Gnowangerup.

Dacelo gigas.

Brown Kingfishers, originally acclimatized in Western Australia, are now spread over all the south-west area, and

were seen in most districts that I visited, including the Lower Warren River in the extreme corner. They were particularly numerous about the Vasse River in April 1919.

A lady who resided on the bank of the river called my attention to a Brown Kingfisher that was perched on a tree on the opposite side of the river to her house, and expressed a hope that no one would shoot it, because it came there every day and she liked to hear its cackling laugh. Then she showed me, with great pride, some hen-coops with several broods of young chickens and ducks placed on the edge of the river (near where the Jackass was perched at the time), and remarked that all the young birds were growing well, but that one or two unaccountably disappeared almost daily. I told her that, in my opinion, the Jackass came there on purpose to eat them, which she would not believe, but said she would watch it next morning. The next time I met her she said she had seen the bird take a young chicken the day after our conversation.

***Dacelo leachii cliftoni*.**

Pale Fawn-breasted Kingfishers were common about the Lower Gascoyne and Minilya river-beds in September 1911, 1913, and 1916. I climbed to a nesting cavity in a white-gum tree which contained four eggs on 1 August, 1911, but a large Lace-Lizard or Monitor (*Varanus*) took them shortly afterwards. Fledged young birds were seen on the Minilya River on 9 September, 1911.

***Cyanalcyon pyrrhopygius obscurus*.**

On 2 October, 1913, I took five incubated eggs of the Northern Red-backed Kingfisher from a hole in a steep sandy bank of the Gascoyne River. As the eggs were in a distinct nest of fine grass, weeds, etc., it is probable that it had been originally made by a pair of Black and White Swallows (*Cheramoecca*), several of which birds were breeding in the vicinity. On 4 August, 1916, I observed a pair of these Kingfishers breeding in a large white anthill at Yardie Creek.

Sauropatis sancta westralasiana.

Only one Western Sacred Kingfisher was seen in the mid-north-west, and that was shot at the mouth of the Yardie Creek on 29 August, 1913, as it looked unusually large. It was a male and measured 230 mm. total length. These birds are scarce in the mid-west area, where *pyrrhopygius* is common. *S. sancta* is the common Kingfisher of the south-west, where it was frequently observed in many localities.

Cosmærops ornatus shortridgei.

Many Western Bee-eaters were seen feeding on the rugged ranges at the Yardie Creek on 29 August, 1913, but I could not find out what insect had attracted them there. These birds seem migratory to some extent, as they are common about Carnarvon and the mid-west in the winter months, and are rarely seen in the south at that season. The reverse of this occurs in the summer.

Heteroscenes pallidus occidentalis.

Western Pallid Cuckoos were scarce in mid-west districts in 1911, owing to its being a dry season, but were plentiful in August and September in 1913 and 1916. None were seen by me in 1919 (when I only visited the south-west area) from the beginning of February to the end of April, when these birds are usually absent. I wonder what becomes of these Cuckoos from, say, November to May, when they are practically absent from both the mid-west and south-west areas. I have records of having seen occasional single birds in December about Broome Hill and Albany, and a few at Lake Muir on 20 January, 1916; but none were ever observed in February or March, and only once was one recorded for April during nine years' observation and residence in that district. These Cuckoos usually arrive in the Gascoyne and mid-west districts about May, or with the first winter rains, and remain until about September; this period coincides very nearly with the months in which they were common about Broome Hill, which were from about the end of May to the end of October.

Cacomantis rubricatus albani.

Western Fan-tailed Cuckoos were only seen on the Warren River in March 1919. Specimens were obtained there.

Owenavis osculans rogersi.

I shot a Western Black-eared Cuckoo on 6 June, 1916, on the edge of a mangrove creek at Carnarvon. It was perched on the topmost twig of a mangrove, and was uttering a peculiar whistling cry, which was hard to locate. Another of these birds was first heard, and then seen, in some scrub on a flat near the river. On 13 September, in the same year, I shot a second specimen about forty miles south of the Minilya River. Previous to the above, I had only seen two of these birds during thirty years' residence in Western Australia.

Neochalcites basalis wyndhami.

Western Narrow-billed Bronze Cuckoos were seldom observed in the mid-west in the dry year of 1911, but were fairly common from Carnarvon northwards in August and September 1913 and 1916, as is usual in a good season. Two specimens were obtained by me on Dirk Hartog Island in September and October 1916 respectively, and I here beg to express my regret for having inadvertently called them *Lamprococcyx plagosus* in my paper in 'The Ibis,' 1917, p. 584, which error on my part has been already corrected in 'The Ibis,' January 1919.

Lamprococcyx plagosus carteri.

Many small parties of Western Bronze Cuckoos were seen by me on and about 4 March, 1916, on the edge of the Margaret River. Such unusual numbers suggested a local migration. An immature bird was seen at Lake Muir on 24 January, 1916. A male bird, not breeding, was shot by me at Carnarvon on 15 August, 1911. This is the only specimen that I ever obtained in mid-west district.

[To be continued.]